Remarks

As stated above, the applicants appreciate the Examiner's thorough examination of the subject application and requests reexamination and reconsideration of the subject application in view of the preceding amendments and following remarks.

Presently, claims 1-24 are pending and the applicant has amended independent claims 1 and 11 to better describe the applicant's invention. No new matter has been added by these amendments. Additionally claims 5, 8, 10, 14, 15 and 18 have been amended and claims 3 and 13 have been canceled.

Concerning Item 1 of the subject action, the Examiner objects to claim 10 due to an informality. In particular, the Examiner objects to the clause "wherein said" being repeated in the claim. Claim 10 has been amended to clarify the language of the claim.

Concerning Item 2-3 of the subject action, the Examiner rejects claims 8 and 18 under 35 USC §112, second paragraph, for lack of proper antecedent basis. Claims 8 and 18 have been amended to provide appropriate antecedent basis.

Concerning Items 4-5 of the subject action, the Examiner rejects claims 1-20 under 35 USC §102(e), as being anticipated by Bhandari et al. (U.S. Patent 5,895,464; hereinafter Bhandari).

The applicants claim (in amended independent claim 1):

A computer system for searching a database, comprising:

      (A) an input section responsive to user entry of a user query;

      (B) an expansion section responsive to the input section, for expanding the user query to include synonyms of action words and object

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words in the user query, wherein the expansion section interacts with an

action dictionary of synonyms that includes a list of "verb-noun" expressions

that are synonymous with other verbs;

       (C) a validation section responsive to said expansion section, and

arranged for interaction with a subject-action-object knowledge database

(SAO KB) containing fields with subjects, actions, objects, for selecting only

those queries having corresponding expressions in the SAO KB; and

       (D) an output section for transmitting the selected queries for

searching in the database.

The applicants respectfully assert that Bhandari fails at least to disclose or suggest element

(B) of the applicant's amended independent claim 1, namely an "expansion section" that "interacts

with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are

synonymous with other verbs".

Accordingly, the applicants respectfully assert that Bhandari is not a proper basis for a 35

USC §102(e) rejection, as the references fails to disclose each and every element of the applicants'

claimed invention.

As described in the subject application, conventional computer-based document-search

processors use keywords to perform searches. Often these keyword searches may produce

enormous amounts of information (the majority of which is irrelevant to the desired search result).

To provide a more complete and more exact search, terms or keywords that are used for searching

may be expanded. For example, a dictionary may be used to identify synonyms of the search terms

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or keywords. Once identified, the synonyms may be added to the keywords or search terms to expand the search.

To provide this expanded searching capabilities, the applicants have claimed a computer system and method for "expanding a user query with action synonyms and with object synonyms to obtain expanded queries, wherein expanding includes interacting with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are synonymous with other verbs" as recited from amended independent claim 11 (emphasis added). By interacting with such a dictionary of synonyms, additional terms and expressions may be identified to expand one or more searches. In particular, a dictionary that includes a list of "verb-noun" expressions may be implemented to expand the searches. As described in the subject application, each "verb-noun" expression includes a verb that is synonymous with the other verbs that are included in a set of "verb-noun" expressions (e.g., increase-temperature, rise-temperature, etc.) (see page 6, line 25 of the subject application).

In contrast, Bhandari does not disclose or suggest expanding a user query by interacting with an action dictionary of synonyms that includes a list of "verb-noun" expressions that are synonymous with other verbs. Bhandari expands a query by adding one or more individual synonyms rather than expanding a search with one or more "verb-noun" expressions. In this regard Bhandari states:

> "If the next level search is required S42, an expanded query frame is generated. Query frame expansion is done by looking up the query role words in the semantic knowledge source and adding a set of appropriate words based on the relationships. In the preferred embodiment, WordNet, which was developed at Princeton University, is be used for semantic knowledge source. WordNet is an on-line

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dictionary of nouns, verbs, adjectives and adverbs which are organized into synonym sets. Different relationships link the synonym sets together. Synonym sets are also organized into different senses of words. In this application, the most common senses of words will be used.

The most important relationship utilized in this preferred embodiment is the synonym. For the Agent role, query words are first augmented by adding synonyms. For example, if the Agent role word was "child", then the synonyms of "kid", "youngster" and so on, would also be used in the matching. Generalization or the a-kind-of (hypernym) relationship is also used. For the action role, in addition to synonyms, the cause and entail relationships is used. This expanded query is then searched against the caption frame database S44. Matching is still of type role-to-role matching, as described above S34. The results of the search are scored S46 and ranked in the same manner as described above S36. If retrieved matches are not acceptable S48 based on the predefined threshold, the next level of search is performed S50. Optionally, user may make the decision to continue further search or not. If the next level search is not required, corresponding images are retrieved from the image database in the order of the ranking S40." (col. 7, lines 13-41)

Accordingly, the applicants respectfully assert that Bhandari is not a proper basis for a 35

USC §102(e) rejection, as the reference fails to disclose each and every element of the applicants'

claimed invention. Therefore the applicants respectfully assert that amended independent claim 1 is

patentable over the combination of the cited references. Further, as dependent claims 2 – 10 and 21

– 24 depend (either directly or indirectly) upon independent claim 1, applicants respectfully assert

that claims 2 – 10 and 21 – 24 are also patentable over the combination. Similar to independent

claim 1, independent claim 11 has been amended to include material for expanding searches by

using an action dictionary of synonyms that includes a list of "verb-noun" expressions synonymous

with other verbs. Accordingly, the applicants respectfully assert that amended independent claim 11

is patentable over the cited references. Further, as dependent claims 12 – 20 depend (either directly

or indirectly) upon independent claim 11, the applicant respectfully asserts that claims 12 – 20 are

also patentable over the reference.

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Concerning Items 6- 8 of the subject action, the Examiner rejects claims 21-24 under 35 USC §103(a), as being unpatentable over Bhandari in view of Rohra Suda et al. (U.S. Patent 5,282,265; hereinafter Rohra Suda).

Rohra Suda is not understood to remedy the foregoing deficiencies of Bhandari. For the reasons discussed above, the applicants respectfully assert that amended independent claim 1 is patentable. As claims 21-24 depend upon independent claim 1, the applicants respectfully assert that claims 21-24 also patentable over the reference.

The total number of claims has been reduced. Therefore, no additional claim fee is required. Please charge the extension fee of $795.00 pursuant to 37 CFR §1.136(a) for a reply within the third month to deposit account 50-1133. The applicants respectfully assert that the subject application is now in condition for allowance. The Commissioner is authorized to charge further fees which may be due or credit any overpayment to deposit account 50-1133.
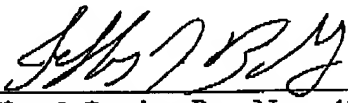
Applicant: G. Troyanova et al.   Atty Docket: 041685 – 0136 (IMCK – 41U)
Serial No.: 09/841,698
Filed: 24 April 2001

If the Examiner believes there are any outstanding issues to be resolved with respect to the

above-identified application, the Examiner is invited to telephone the undersigned at their earliest

convenience so that such issues may be resolved telephonically.

Respectfully submitted,

Date: / Sept. 2005

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